

The listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-62 (Canceled)

63. (new) A method for providing adaptive fragmentation of information packets transmitted over a link of a data network, the method comprising:  
monitoring conditions on the link;  
detecting a presence of real-time traffic on the link;  
automatically enabling fragmentation on the link in response to the detection of the presence of real-time traffic on said link;  
detecting an absence of real-time traffic on the link;  
determining whether a predetermined time interval T has elapsed since detection of the absence of real-time traffic on the link; and  
automatically disabling fragmentation on the link in response to determining that the predetermined time interval T has elapsed since the detection of the absence of real-time traffic on the link.

64. (new) The method of claim 63 further comprising using a timer to measure said predetermined time interval T.

65. (new) The method of claim 63 further comprising:  
starting a timer in response to detecting the absence of real-time traffic on the link; and  
automatically disabling fragmentation on the link in response to detecting that the timer has expired.

66. (new) The method of claim 65 further comprising resetting the timer in response to detecting the presence of real-time traffic on the link.

67. (new) The method of claim 63 wherein the predetermined time interval T is a value ranging from about 60 seconds to about 180 seconds.

68. (new) The method of claim 63 further comprising:  
detecting an external signal from a first network device; and  
determining whether the external signal is related to a real-time set-up signal for establishing at least one real-time connection on the link.

69. (new) The method of claim 63, wherein the link includes at least one network device, and the network device is configured to transmit information over the link using a Frame Relay protocol.

70. (new) The method of claim 63, wherein the link includes at least one network device, and the network device is configured to transmit information over the link using a PPP multilink protocol.

71. (new) The method of claim 63, wherein the link includes at least one network device, and the network device is configured to transmit information over the link using an ATM protocol.

72. (new) A method for providing adaptive fragmentation of information packets transmitted over a link of a data network, the method comprising:

configuring the link to include a dynamically adjustable FRAG\_SIZE value relating to a fragmentation size for packets carried on the link such that fragmentation will be performed on selected packets which have a size greater than the FRAG\_SIZE value; and

dynamically increasing the FRAG\_SIZE value on the link over a given time period in response to detecting the absence of real-time traffic on the link during the given time period.

73. (new) The method of claim 72 further comprising dynamically decreasing the FRAG\_SIZE value on the link in response to detecting the presence of real-time traffic on the link.

74. (new) The method of claim 72 further comprising dynamically decreasing the FRAG\_SIZE value in response detecting the presence of real-time traffic on the link to thereby cause fragmentation to effectively be enabled on the link.

75. (new) The method of claim 72 further comprising continually increasing the FRAG\_SIZE value on the link over a continuous time period in response to detecting the absence of real-time traffic on the link during the time period.

76. (new) The method of claim 72 further comprising limiting the increase of FRAG\_SIZE value to a maximum predetermined value which represents a maximum transmission unit size of packets to be carried over the link, thereby effectively disabling fragmentation on the link.

77. (new) The method of claim 72 wherein the FRAG\_SIZE value is increased substantially linearly over time in response to no real-time traffic being detected on the link.

78. (new) The method of claim 72 wherein the FRAG\_SIZE value is increased substantially exponentially over time in response to no real-time traffic being detected on the link.

79. (new) A computer program product for providing adaptive fragmentation of information packets transmitted over a link of a data network, the computer program product comprising:

a computer usable medium having computer readable code embodied therein, the computer readable code comprising:

computer code for monitoring conditions on the link;

computer code for detecting a presence of real-time traffic on the link;

computer code for automatically enabling fragmentation on the link in response to the detection of the presence of real-time traffic on said link;

computer code for detecting an absence of real-time traffic on the link;

computer code for determining whether a predetermined time interval T has elapsed since detection of the absence of real-time traffic on the link; and

computer code for automatically disabling fragmentation on the link in response to determining that the predetermined time interval T has elapsed since the detection of the absence of real-time traffic on the link.

80. (new) The computer program product of claim 79 further comprising computer code for using a timer to measure said predetermined time interval T.

81. (new) The computer program product of claim 79 further comprising:  
computer code for starting a timer in response to detecting the absence of real-time traffic on the link; and

computer code for automatically disabling fragmentation on the link in response to detecting that the timer has expired.

82. (new) The computer program product of claim 81 further comprising computer code for resetting the timer in response to detecting the presence of real-time traffic on the link.

83. (new) The computer program product of claim 79 wherein the predetermined time interval T is a value ranging from about 60 seconds to about 180 seconds.

84. (new) The computer program product of 79 further comprising:  
computer code for detecting an external signal from a first network device; and  
computer code for determining whether the external signal is related to a real-time set-up signal for establishing at least one real-time connection on the link.

85. (new) The computer program product of claim 79, wherein the link includes at least one network device, and the network device is configured to transmit information over the link using a Frame Relay protocol.

86. (new) The computer program product of claim 79, wherein the link includes at least one network device, and the network device is configured to transmit information over the link using a PPP multilink protocol.

87. (new) The computer program product of claim 79, wherein the link includes at least one network device, and the network device is configured to transmit information over the link using an ATM protocol.

88. (new) A computer program product for providing adaptive fragmentation of information packets transmitted over a link of a data network, the computer program product comprising:

computer code for configuring the link to include a dynamically adjustable FRAG\_SIZE value relating to a fragmentation size for packets carried on the link such that fragmentation will be performed on selected packets which have a size greater than the FRAG\_SIZE value; and

computer code for dynamically increasing the FRAG\_SIZE value on the link over a given time period in response to detecting the absence of real-time traffic on the link during the given time period.

89. (new) The computer program product of claim 88 further comprising computer code for dynamically decreasing the FRAG\_SIZE value on the link in response to detecting the presence of real-time traffic on the link.

90. (new) The computer program product of claim 88 further comprising computer code for dynamically decreasing the FRAG\_SIZE value in response detecting the presence of real-time traffic on the link to thereby cause fragmentation to effectively be enabled on the link.

91. (new) The computer program product of claim 88 further comprising computer code for continually increasing the FRAG\_SIZE value on the link over a continuous time period in response to detecting the absence of real-time traffic on the link during the time period.

92. (new) The computer program product of claim 88 further comprising computer code for limiting the increase of FRAG\_SIZE value to a maximum predetermined value which represents a maximum transmission unit size of packets to be carried over the link, thereby effectively disabling fragmentation on the link.

93. (new) The computer program product of claim 88 wherein the FRAG\_SIZE value is increased substantially linearly over time in response to no real-time traffic being detected on the link.

94. (new) The computer program product of claim 88 wherein the FRAG\_SIZE value is increased substantially exponentially over time in response to no real-time traffic being detected on the link.

95. (new) A system for providing adaptive fragmentation of information packets transmitted over a link of a data network, the system comprising:

means for monitoring conditions on the link;  
means for detecting a presence of real-time traffic on the link;  
means for automatically enabling fragmentation on the link in response to the detection of the presence of real-time traffic on said link;  
means for detecting an absence of real-time traffic on the link;  
means for determining whether a predetermined time interval T has elapsed since detection of the absence of real-time traffic on the link; and  
means for automatically disabling fragmentation on the link in response to determining that the predetermined time interval T has elapsed since the detection of the absence of real-time traffic on the link.

96. (new) The system of claim 95 further comprising means for using a timer to measure said predetermined time interval T.

97. (new) The system of claim 95 further comprising:  
means for starting a timer in response to detecting the absence of real-time traffic on the link; and  
means for automatically disabling fragmentation on the link in response to detecting that the timer has expired.

98. (new) The system of claim 97 further comprising means for resetting the timer in response to detecting the presence of real-time traffic on the link.

99. (new) The system of claim 95 wherein the predetermined time interval T is a value ranging from about 60 seconds to about 180 seconds.

100. (new) The system of claim 95 further comprising:  
means for detecting an external signal from a first network device; and  
means for determining whether the external signal is related to a real-time set-up signal for establishing at least one real-time connection on the link.

101. (new) The system of claim 95, wherein the link includes at least one network device, and the network device is configured to transmit information over the link using a Frame Relay protocol.

102. (new) The system of claim 95, wherein the link includes at least one network device, and the network device is configured to transmit information over the link using a PPP multilink protocol.

103. (new) The system of claim 95, wherein the link includes at least one network device, and the network device is configured to transmit information over the link using an ATM protocol.

104. (new) A system for providing adaptive fragmentation of information packets transmitted over a link of a data network, the system comprising:

means for configuring the link to include a dynamically adjustable FRAG\_SIZE value relating to a fragmentation size for packets carried on the link such that fragmentation will be performed on selected packets which have a size greater than the FRAG\_SIZE value; and

means for dynamically increasing the FRAG\_SIZE value on the link over a given time period in response to detecting the absence of real-time traffic on the link during the given time period.

105. (new) The system of claim 104 further comprising means for dynamically decreasing the FRAG\_SIZE value on the link in response to detecting the presence of real-time traffic on the link.

106. (new) The system of claim 104 further comprising means for dynamically decreasing the FRAG\_SIZE value in response detecting the presence of real-time traffic on the link to thereby cause fragmentation to effectively be enabled on the link.

107. (new) The system of claim 104 further comprising means for continually increasing the FRAG\_SIZE value on the link over a continuous time period in response to detecting the absence of real-time traffic on the link during the time period.

108. (new) The system of claim 104 further comprising means for limiting the increase of FRAG\_SIZE value to a maximum predetermined value which represents a maximum transmission unit size of packets to be carried over the link, thereby effectively disabling fragmentation on the link.

109. (new) The system of claim 104 wherein the FRAG\_SIZE value is increased substantially linearly over time in response to no real-time traffic being detected on the link.

110. (new) The system of claim 104 wherein the FRAG\_SIZE value is increased substantially exponentially over time in response to no real-time traffic being detected on the link.

111. (new) A system for providing adaptive fragmentation of information packets transmitted over a link of a data network , the system comprising:

- at least one processor;

- at least one interface configured or designed to provide a communication link to at least one other network device in the data network; and

- memory;

- the system being configured or designed to monitor conditions on the link;

- the system being further configured or designed to detecting a presence of real-time traffic on the link;

- the system being further configured or designed to automatically enable fragmentation on the link in response to the detection of the presence of real-time traffic on said link;

- the system being further configured or designed to detecting an absence of real-time traffic on the link;

- the system being further configured or designed to determining whether a predetermined time interval T has elapsed since detection of the absence of real-time traffic on the link; and

- the system being further configured or designed to automatically disable fragmentation on the link in response to determining that the predetermined time interval T has elapsed since the detection of the absence of real-time traffic on the link.

112. (new) The system of claim 111 further comprising a timer configured or designed to measure said predetermined time interval T.

113. (new) The system of claim 112 being further configured or designed to:

- start the timer in response to detecting the absence of real-time traffic on the link; and

- automatically disable fragmentation on the link in response to detecting that the timer has expired.



114. (new) The system of claim 113 being further configured or designed to reset the timer in response to detecting the presence of real-time traffic on the link.

115. (new) The system of claim 111 wherein the predetermined time interval T is a value ranging from about 60 seconds to about 180 seconds.

116. (new) The system of claim 111 being further configured or designed to:  
detect an external signal from a first network device; and  
determine whether the external signal is related to a real-time set-up signal for establishing at least one real-time connection on the link.

117. (new) The system of claim 111 further comprising at least one network device configured or designed to transmit information over the link using a Frame Relay protocol.

118. (new) The system of claim 111, further comprising at least one network device configured or designed to transmit information over the link using a PPP multilink protocol.

119. (new) The system of claim 111, further comprising at least one network device configured or designed to transmit information over the link using an ATM protocol.

120. (new) A system for providing adaptive fragmentation of information packets transmitted over a link of a data network, the system comprising:

at least one processor;

at least one interface configured or designed to provide a communication link to at least one other network device in the data network; and

memory;

the system being configured or designed to configure the link to include a dynamically adjustable FRAG\_SIZE value relating to a fragmentation size for packets carried on the link such that fragmentation will be performed on selected packets which have a size greater than the FRAG\_SIZE value; and

the system being further configured or designed to dynamically increase the FRAG\_SIZE value on the link over a given time period in response to detecting the absence of real-time traffic on the link during the given time period.

121. (new) The system of claim 120 being further configured or designed to dynamically decrease the FRAG\_SIZE value on the link in response to detecting the presence of real-time traffic on the link.

122. (new) The system of claim 120 being further configured or designed to dynamically decrease the FRAG\_SIZE value in response detecting the presence of real-time traffic on the link to thereby cause fragmentation to effectively be enabled on the link.

123. (new) The system of claim 120 being further configured or designed to continually increase the FRAG\_SIZE value on the link over a continuous time period in response to detecting the absence of real-time traffic on the link during the time period.

124. (new) The system of claim 120 being further configured or designed to limit the increase of FRAG\_SIZE value to a maximum predetermined value which represents a maximum transmission unit size of packets to be carried over the link, thereby effectively disabling fragmentation on the link.

125. (new) The system of claim 120 wherein the FRAG\_SIZE value is increased substantially linearly over time in response to no real-time traffic being detected on the link.

126. (new) The system of claim 120 wherein the FRAG\_SIZE value is increased substantially exponentially over time in response to no real-time traffic being detected on the link.